

Exercise #1 :

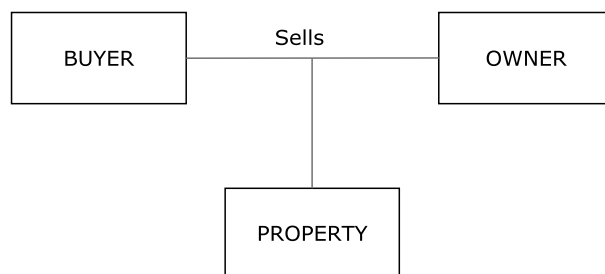
1. Match the following terms and definitions:

weak entity	entity
Attribute	relationship type
cardinality constraint	identifier

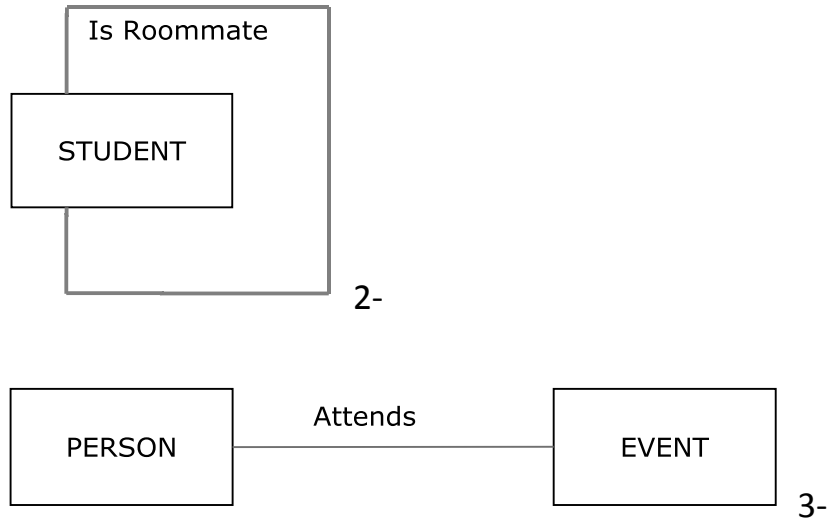
- a. _____ uniquely identifies entity instances
- b. _____ property of an entity.
- c. _____ depends on the existence of another entity type.
- d. _____ can be a person, place, object , and event.

2. List the four types of cardinality and draw an example for each ?

3. What is the degree of the following relationships :



1.



4. For each of the descriptions below, perform the following tasks :

- i. Identify the degree and cardinalities of the relationship.
 - ii. Express the relationships in each description graphically with an E-R diagram
- a. A book is identified by its ISBN number, and it has a title, a price, and a date of publication. It is published by a publisher, each of which has its own ID number and a name. Each book has exactly one publisher, but one publisher typically publishes multiple books over time.
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- b. A book is identified by its ISBN number, and it has a title, a price, and a date of publication. It is written by one or multiple authors. Each author is identified by an author number and has a name and date of birth. Each author has either one or multiple books

- c. A piano manufacturer wants to keep track of all the pianos it makes individually. Each piano has an identifying serial number and a manufacturing completion date. Each instrument represents exactly one piano model, all of which have an identification number and a name. In addition, the company wants to maintain information about the designer of the model. Over time, the company often manufactures thousands of pianos of a certain model.
